

Open Science Philosophy, Research and Innovation

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Abstract : Open Science translates the understanding and application of various theories and practices in open science philosophy, systems, paradigms and epistemology. Open Science originates with the premise that universal scientific knowledge is a product of a collective scholarly and social collaboration involving all stakeholders and knowledge belongs to the global society. Scientific outputs generated by public research are a public good that should be available to all at no cost and without barriers or restrictions. Open Science has the potential to increase the quality, impact and benefits of science and to accelerate advancement of knowledge by making it more reliable, more efficient and accurate, better understandable by society and responsive to societal challenges, and has the potential to enable growth and innovation through reuse of scientific results by all stakeholders at all levels of society, and ultimately contribute to growth and competitiveness of global society. Open Science is a global movement to improve accessibility to and reusability of research practices and outputs. In its broadest definition, it encompasses open access to publications, open research data and methods, open source, open educational resources, open evaluation, and citizen science. The implementation of open science provides an excellent opportunity to renegotiate the social roles and responsibilities of publicly funded research and to rethink the science system as a whole. Open Science is the practice of science in such a way that others can collaborate and contribute, where research data, lab notes and other research processes are freely available, under terms that enable reuse, redistribution and reproduction of the research and its underlying data and methods. Open Science represents a novel systematic approach to the scientific process, shifting from the standard practices of publishing research results in scientific publications towards sharing and using all available knowledge at an earlier stage in the research process, based on cooperative work and diffusing scholarly knowledge with no barriers and restrictions. Open Science refers to efforts to make the primary outputs of publicly funded research results (publications and the research data) publicly accessible in digital format with no limitations. Open Science is about extending the principles of openness to the whole research cycle, fostering, sharing and collaboration as early as possible, thus entailing a systemic change to the way science and research is done. Open Science is the ongoing transition in how open research is carried out, disseminated, deployed, and transformed to make scholarly research more open, global, collaborative, creative and closer to society. Open Science involves various movements aiming to remove the barriers for sharing any kind of output, resources, methods or tools, at any stage of the research process. Open Science embraces open access to publications, research data, source software, collaboration, peer review, notebooks, educational resources, monographs, citizen science, or research crowdfunding. The recognition and adoption of open science practices, including open science policies that increase open access to scientific literature and encourage data and code sharing, is increasing in the open science philosophy. Revolutionary open science policies are motivated by ethical, moral or utilitarian arguments, such as the right to access digital research literature for open source research or science data accumulation, research indicators, transparency in the field of academic practice, and reproducibility. Open science philosophy is adopted primarily to demonstrate the benefits of open science practices. Researchers use open science applications for their own advantage in order to get more offers, increase citations, attract media attention, potential collaborators, career opportunities, donations and funding opportunities. In open science philosophy, open data findings are evidence that open science practices provide significant benefits to researchers in scientific research creation, collaboration, communication, and evaluation according to more traditional closed science practices. Open science considers concerns such as the rigor of peer review, common research facts such as financing and career development, and the sacrifice of author rights. Therefore, researchers are recommended to implement open science research within the framework of existing academic evaluation and incentives. As a result, open science research issues are addressed in the areas of publishing, financing, collaboration, resource management and sharing, career development, discussion of open science questions and conclusions.

Keywords : Open Science, Open Science Philosophy, Open Science Research, Open Science Data

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